

Methodology of Young Minds Matter: the second Australian Child and Adolescent Survey of Mental Health and Wellbeing

Running title: Methodology of the Young Minds Matter Survey

Jennifer Hafekost¹, David Lawrence¹, Katrina Boterhoven de Haan¹, Sarah E Johnson¹, Suzy Saw², William J Buckingham³, Michael G. Sawyer⁴, Dr John Ainley⁵, Stephen R Zubrick¹

1. Telethon Kids Institute, The University of Western Australia, Perth, Australia
2. Health Data Analysis Pty Ltd
3. Buckingham & Associates Pty Ltd
4. Discipline of Paediatrics, University of Adelaide, Adelaide, Australia
5. Australian Council for Educational Research, Melbourne, Australia

Corresponding Author:

Jennifer Hafekost, Telethon Kids Institute, The University of Western Australia, PO Box 855, West Perth WA 6872, Australia. Tel: +61 8 9489 7933, Fax: +61 8 9489 7700.

Email: Jennifer.Hafekost@telethonkids.org.au

Word count: 4,478

Abstract

Objective: To describe the study design of Young Minds Matter: the second Australian Child and Adolescent Survey of Mental Health and Wellbeing (YMM). The aims of the study, sample design, development of survey content, field procedures and final questionnaires are detailed.

Method: During 2013-14, a national household survey of the mental health and wellbeing of young people was conducted involving a sample of 6,310 families selected at random from across Australia. The survey included a face-to-face diagnostic interview with parents/carers of 4-17 year olds and a self-report questionnaire completed by young people aged 11-17 years.

Results: The overall response rate to the survey was 55% with 6,310 parents/carers of eligible households participating in the survey. In addition, 2,967 or 89% of young people aged 11-17 years in these participating households completed a questionnaire. The survey sample was found to be broadly representative of the Australian population on major demographic characteristics when compared to data from the Census of Population and Housing. However, adjustments were made for an over

representation of younger children aged 4 to 7 years and also families with more than one eligible child in the household.

Conclusions: YMM provides updated national prevalence estimates of common child and adolescent mental disorders, describes patterns of service use and will help to guide future decisions in the development of policy and provision of mental health services for children and adolescents. Advancements in interviewing methodology, addition of a data linkage component and informed content development contributed to improved breadth and quality of the data collected.

Keywords:

Methodology, children, adolescents, mental health, survey, DISC-IV.

Introduction

Young Minds Matter: The second Australian Child and Adolescent Survey of Mental Health and Wellbeing (YMM) was conducted in 2013-14 by the Telethon Kids Institute, The University of Western Australia (UWA) on behalf of the Australian Government Department of Health. The survey is part of the National Survey of Mental Health and Wellbeing initiative and complements data collected in the population surveys of adults and of people living with psychotic disorders conducted in 2007 and 2010 respectively (Slade et al., 2009; Morgan et al., 2010).

The first child and adolescent component of the National Survey of Mental Health and Wellbeing was conducted in 1998. The 1998 survey was the first of its kind, both nationally and internationally, to measure prevalence and burden of mental disorders in children and adolescents. The survey provided important data on the prevalence of mental disorders, the burden associated with these disorders and the services used in their management. It reported that 14% of children and adolescents in Australia had experienced mental health problems in the previous 6 months, determined by a score in the clinical range on the Child Behavior Checklist, and only approximately one quarter of these children had received professional support during the last six months (Sawyer et al., 2001). For the past seventeen years these data were the only source of

Australian data at a population level that were available to inform mental health policy and service planning for children and adolescents. Over that period there has been substantial growth in mental health services designed to meet the needs of Australia's child and youth population.

The second Child and Adolescent Survey of Mental Health and Wellbeing (YMM) provides updated prevalence estimates, and new information on service use. It provides data on the prevalence of disorders in the population and the impact of these, as well as whether those children have received services for mental health problems. The types of services used, whether their needs have been met and whether additional services were wanted were also explored. Findings have been designed to inform the development of future policy and provision of services in the area of child and adolescent mental health.

Methods and materials

Survey methodology

Sample design. YMM was a national survey involving a random probability based sample of 5,500 children aged 4-17 years. The sample size of 5,500 was chosen to

deliver reliable estimates of prevalence, burden and service use by gender and age groups 4-11 years and 12-17 years. A multi-stage, area-based sample selection procedure was employed to select the areas for interviewing. First, Statistical Area Level 2s (SA2s) as defined by the ABS (2011), representing a community both socially and economically with an average population of 20,000, were stratified by state/territory and by metropolitan versus rest of the state to ensure proportional representation of geographic areas across Australia. Then from these selected SA2s, 550 Statistical Level Area 1s (SA1s) were selected. SA1s are smaller than SA2s with an average population of 400 people. It was anticipated that on average, each SA1 would achieve 10 interviews to produce the required sample size of 5,500 families. SA1s were randomly selected with probability proportional to the number of children aged 4-17 years from the 2011 Census of Population and Housing.

Oversampling. An oversample of 16-17 year olds was included in the survey. This sample is of particular interest due to onset of risk behaviours related to mental health in this age group and an increasing level of contact with mental health services (Igra et al., 1996). In addition, past evidence has shown poor response rates to surveys in this age group. The oversample allowed for more precise prevalence estimates of individual disorders to be generated for this age group. The resulting data also enables some basic comparison to be made with the findings on 16-17 year olds in the 2007

National Survey of Mental Health and Wellbeing of Adults (age range of survey 16-85 years). The oversample of 800 16-17 year olds was recruited through additional screening in approximately 50% of the SA1s selected in the main sample.

Field procedures

Interviewer training. Field work was undertaken by Roy Morgan Research (RMR). Training of interviewers was conducted by RMR with close and involved support from the UWA survey team. The three day training course included information on survey content and mental health literacy. Lay interviewers were trained not only to standardise the administration of the interviews, but also to improve their mental health literacy to better cope with responses.

Maximising response rates. Several key strategies were employed to maximise response rates. Targeted respondent material was used to inform and encourage participation. These included a primary approach letter, parent/carer and young person's brochure, and survey website along with a celebrity endorsement flyer. Interviewers offered reimbursement payments to participants in recognition of their time commitment in completing the survey, (\$40 for parents/carers interview and \$20 for young people).

Interviewers were required to make six call attempts to establish contact with households. Contact attempts were required to be spread over weekdays, weekends and a range of different times of the day. Once contact was made with a household up to six further call backs were specified to complete the survey with the selected household. If it was not possible to gain participation from the selected household, the interviewer tried to obtain some basic information about the household. This included collecting information about the location of the dwelling, the reason for refusal and if the respondent was willing, information about the basic structure of the household including number and ages of in-scope children and the family structure to allow for comparison between survey participants and non-participants.

Additional component

Data linkage and matching. Linking survey data to relevant administrative data can provide important additional information about participants without increasing respondent burden. Medicare, Pharmaceutical Benefits Scheme (PBS) and the National Assessment Program - Literacy and Numeracy (NAPLAN) data were identified as useful sources of additional information for the survey.

Medicare and PBS data will supplement information captured in the parent/carer and youth service use modules. Written consent was sought to access data from birth and

prospectively up to two years following the survey period. Consent for linkage to Medicare and PBS data was provided by 76% of parents/carers participating in the survey.

NAPLAN data will complement information captured in the parent/carer and youth education modules by providing a further measure of school performance.

Parental/carer consent was sought to access all available retrospective NAPLAN results from 2008 - 2013 and prospective results from 2014 through to 2016. Parents/carers of 86% of all 5-17 year olds participating in YMM provided consent for linkage to NAPLAN data.

Ethics

The research protocol for the study was approved by the Australian Government Department of Health Human Research Ethics Committee, and The University of Western Australia Human Research Ethics Committee.

Content of the survey

The survey was comprised of two components: a parent/carer interview and a questionnaire to be completed on a tablet computer by young people aged 11-17 years.

Parent/carer interview

The interview was conducted via Computer Assisted Personal Interview (CAPI) with the primary carer of the survey child. All participants were asked questions in all modules.

These included:

- Family structure
- Child health Diagnostic Interview Schedule for Children (DISC-IV) modules (Shaffer et al., 2000);
- Level of functional impairment questions;
- Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997) Parent Report Measure Baseline versions for Children (4-10 years) and for Youth (11-17 years);
- Service use in the past 12 months;
- Perceived need for services;
- Education
- Family characteristics

- Kessler Psychological Distress Scale (K10) (Kessler et al., 2003) for primary parent/carer; and
- Demographics.

See Table 1 for a full description of modules included in the parent/carer interview.

The parent/carer questionnaire in the first national survey consisted of the Diagnostic Interview Schedule for Children IV (DISC), the Child Behaviour Checklist (CBCL), Child Health Questionnaire (CHQ), basic demographics, a module on service use and questions on physical health.

Diagnostic module

To maintain consistency with the first child and adolescent national survey and allow for maximum comparability of prevalence estimates, the Diagnostic Interview Schedule for Children IV (DISC-IV) was utilised (Shaffer et al., 2000). The DISC-IV operationalises the diagnostic criteria as specified in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (American Psychiatric Association, 2000). In 2013 the DISC-IV remained the best tool world-wide for assessing 12-month prevalence of mental disorders. The modular format of the DISC-IV questionnaire allows relevant disorders to be selected for inclusion.

DISC-IV modules were selected for inclusion on the basis of prevalence and impact of the disorder. Conduct disorder, major depressive disorder, and Attention-deficit/Hyperactivity disorder (ADHD), which were collected in the first survey, were included. Anxiety disorders, not included in the first national survey, were also covered through four diagnostic modules - social phobia, separation anxiety disorder, generalised anxiety disorder and obsessive compulsive disorder.

Measure of emotional and behavioural difficulties. The first national survey included both a parent/carer and youth reported Child Behaviour Checklist (CBCL) as the key measure of emotional and behavioural difficulties. The SDQ (Goodman, 1997) was selected to replace the CBCL in the second survey. While having equivalent discriminatory and psychometric properties to the CBCL, the SDQ is substantially shorter taking an average of 5 minutes to administer rather than 15-20 minutes for the CBCL. Since the first survey, the SDQ has also been widely adopted in data collections across Australia including state and territory telephone surveys, the Longitudinal Study of Australian Children (LSAC) (Department of Family and Community Services, 2004) and the National Outcomes and Casemix Collection established in state and territory mental health services. The SDQ has also been designated by the Australian Institute of Health and Welfare as the preferred source of a national headline indicator for measuring social and emotional wellbeing of children and adolescents (AIHW, 2012).

Its wide use in Australia allows for a range of “crosswalks” to be made between the survey and other relevant data collections.

Impact on functioning. Severity of the impact of mental disorders on functioning was assessed using a specially developed measure. Seventeen items were selected based on those used for the assessment of impairment in the DISC-IV (Shaffer et al., 2000), and some of the items were based on items used in the Brief Impairment Scale (Bird et al., 2005). These assessed the impact of symptoms across four domains: the child or adolescent’s educational or workplace participation, their social development, family activities and other family members, and on the child or adolescent themselves, particularly distress.

Ordinal covariance methods, along with Item Response Theory, were used to assess these items and their suitability for use as a composite scale. A final Graded Response Model was fitted to the item data to construct a composite score measuring severity of impact on function. The score was standardised and categorised into mild, moderate and severe impact consistent with the epidemiological estimates underpinning work in progress on the National Mental Health Services Planning Framework (G. Stewart, personal communication, October 3, 2014).

An overall level of severity was then assigned taking into account diagnosis of mental disorders, the impact on function category and if there had been any suicide attempt in the previous 12 months. It should be noted that a suicide attempt in the previous 12 months, if indicated, was a sufficient indicator for a “severe” classification to be assigned although most young people with a suicide attempt would have been classified as severe based on impairment to functioning.

Service Use. Capturing information on the types of services used by children and adolescents for the treatment of emotional and behavioural problems was a core aim of YMM. Service use questions from the first survey were updated to reflect current service provision. The parent/carer questionnaire covered questions on health services, school services, telephone counselling services and other online services for emotional and behavioural problems used over the 12 months prior to the survey. Medication use in the previous two weeks was also captured. Additionally, parents/carers were asked if they thought that their child required more help and if there were any barriers to seeking or receiving help for emotional or behavioural problems over the 12 months prior to the survey.

Demographic Characteristics. Information was obtained on the demographic characteristics of participants and their families including parent/carer education, job

status, household income, home ownership and indicators of financial stress. For comparability, where possible, demographic questions were harmonised with Australian Bureau Statistics Census standards. Interviewers also provided a rating of the condition of houses and yards in the area, availability and condition of open space areas such as parks, the attitude of households approached and the presence of security features on the houses in the area.

Child health. A number of questions was included in the parent/carer questionnaire to capture chronic health conditions, disability and emotional or behavioural problems as diagnosed by a health professional. These questions replaced questions from the CHQ, as used in the first survey,

Additional content. Modules on the survey child's education and family information were also included to provide contextual information regarding child and adolescent development and wellbeing. The education module in the parent/carer questionnaire captured the educational status and school performance of the child or adolescent. The family characteristics module included questions on the parent/carer's mental health, assessed via the Kessler 10+ (Kessler et al., 2003). A 6-item version of the general functioning subscale of the McMaster Family Assessment Device assessed family functioning (Boterhoven de Haan et al., 2014). In addition to this a list of life

stress events, aligned with questions from the Longitudinal Study of Australian Children (Department of Family and Community Services, 2004) was included as well as questions on parent/carer substance use.

Youth self-report questionnaire

The youth self-report questionnaire was completed by young people in private on a tablet-computer. Modules included:

- Demographics
- Education
- Use of internet and electronic games;
- Strengths and Difficulties Questionnaire (SDQ) Youth Self Report Baseline version (Goodman, 1997);
- Child health utility-9D (CHU-9D) (Landgraf et al., 1996);
- Kessler Psychological Distress Scale (K10+) (Green et al., 2010);
- DISC-IV major depressive disorder module (Shaffer et al., 2000);
- Level of functional impairment questions;
- Service use in past 12 months;
- Youth risk behaviours;
- Presence of symptoms of psychosis;

- Level of self-esteem and protective behaviours.

See table 2 for a full description of modules included in the youth self-report questionnaire.

The lower age limit of the youth self-report questionnaire in the second survey was 11 years old in order to capture important changes as children transition through puberty. Due to the perceived sensitive nature of some questions, children younger than 12 years were not asked about self-harm and suicidal behaviours or sexual behaviours and answered limited questions on alcohol, cigarettes and other drugs.

In the first survey, a self-report module was included for all adolescents aged 13 to 17 years old. The questionnaire included the CBCL, Child Health Questionnaire (CHQ-CF87), the Centre for Epidemiological Studies Depression Scale (CES-D) along with questions on drug use and suicidal behaviour from the Youth Risk Behavior Surveillance System (YRBSS) questionnaire (Kolbe et al., 1993).

Diagnostic Module. There was limited scope to include diagnostic modules in the youth self-report within the parameters of acceptable response times. Just one module on major depressive disorder was included. A “self-report youth major depressive disorder diagnostic module” was developed specifically for the survey in collaboration with Associate Professor Prudence Fisher at Columbia University, who played a key

role in the development of the DISC-IV. To minimise respondent burden this module was limited to diagnose major depression, and did not include questions for dysthymic disorder. The module provides information on this disorder in adolescence and evidence of the sometimes disparate views of various informants on young people's mental health.

Measures of emotional and behavioural difficulties. In line with the removal of the CBCL-YSR from the parent/carer questionnaire the youth-report CBCL-YSR was replaced with the self-report SDQ. In addition, to both supplement the inclusion of the youth diagnostic module and to provide a crosswalk to the adult survey and other national collections, the K10+ was added to the youth self-report questionnaire. This included a question on days out of role, additional questions on aggression and attention and a positive mental health question (Green et al., 2010).

Low prevalence was the major barrier to the inclusion of diagnostic modules to measure psychosis. Items that could be used as possible indicators of prodromal states congruent with psychosis were included. Questions on psychosis symptoms was drawn from the DISC-IV diagnostic instrument. These questions were included in the youth self-report questionnaire for adolescents aged 14 years and above.

Service Use. Due to the more complex language of the service use module and the relatively small proportion of 11 and 12 year olds utilising mental health services independently without a parent/carer, this module was administered to young people 13 years and above. Similar to the parent/carer interview, questions covered health services, school services, telephone counselling services and other online services for emotional and behavioural problems used over the previous 12 months. Young people were also asked if they thought that they needed more help and if there were any barriers to seeking or receiving help for emotional or behavioural problems over the 12 months prior to the survey.

Quality of life. The Child Health Utility-9D was included in the youth self-report questionnaire (Landgraf et al., 1996). It captures functioning over 9 different dimensions, for example, if the child or adolescent had problems with sleep, ability to do their homework or carry out their usual routine. This replaced the health related quality of life measure included in the CHQ in the first national survey.

Education. To supplement the education module in the parent/carer interview the youth self-report questionnaire included questions on education status, school connectedness and academic performance.

Internet use. Technology has become a much more important part of young people's lives since the first national survey was conducted. Questions were included to assess levels of internet and electronic game use and any possible negative impact this may have on young people. A tailored questionnaire based on the EU Kids Online survey was developed for this purpose (Livingstone et al., 2009).

Youth risk behaviours. The first national survey utilised the Youth Risk Behavior Surveillance System (YRBSS) to capture information on youth risk behaviours (Kolbe et al., 1993). Updates made to the YRBS questionnaire since the first survey were reviewed and the following areas of content were included in the questionnaire: tobacco use, alcohol, and other drugs, deliberate self-harm (without intent to end their own life) and suicide, bullying, eating disorders and sexual behaviour. Content was tailored to be age appropriate and age cut offs or restrictions of the number of items were set for particular questions. With regards to smoking and alcohol, young people aged 11-12 were asked screening questions about ever using these, while young people 13 years and older were asked more extensive questions about use and amount. Other drug use was asked of young people 13 years and older, self-harm and suicidal behaviour was asked of young people 12 years and older and sexual behaviour of young people 13 years and older.

Self-esteem and protective factors. The Adolescent Self Esteem Questionnaire was used to assess self-esteem. This 13 item questionnaire, targeted specifically to adolescents, was developed by the UWA survey team. This questionnaire replaced the CHQ which was used to measure self-esteem in the first survey.

Questions relating to protective factors, and in particular positive mental health and resilience, were included in the youth self-report questionnaire. Questions drawn from the National Comorbidity Survey – Adolescent Supplement about social support formed the basis of this module (Merikangas et al., 2009).

Testing

A comprehensive pilot and cognitive testing process was conducted to inform the development of survey content, assess its meaning and suitability to respondents, and finalise field administration procedures prior to main fieldwork. This included cognitive testing of the parent/carer and youth interview with participants from both general and clinical populations, and a more extensive pilot test followed by a formal dress rehearsal. Feedback from these processes resulted in improvements to the parent/carer interview and youth questionnaire as well as the procedural and operational aspects of the survey. Further detail regarding testing of survey content and procedures can be found in the Survey User's guide (Telethon Kids Institute, 2015).

Main survey

Fieldwork for the main wave of data collection was conducted between 31 May 2013 and 10 April 2014.

Screening

As there is no list of households with children aged 4 to 17 years old the number of households selected in each SA1 was calculated based on the proportion of households with children 4-17 years at the 2011 census. During the fieldwork a consistent trend was observed to find about 19% fewer households than expected in-scope. Despite investigations, no reason for this could be determined. Sample size per SA1 was adjusted for the second half of the fieldwork for the difference in the projected number of households with 4-17 year olds from the 2011 Census and the reality of numbers found in the first half of the survey fieldwork. In total 76,606 households were approached during the survey.

Interview duration

The Parent/carer interview ranged from 20 to 255 minutes with a mean duration of 66 minutes and a median duration of 60 minutes. This excluded the time taken to complete the consent booklet and the initial screening of the household. Overall

average interviewer time in the household was 75 minutes. Time taken to complete the youth self-report questionnaire ranged from 11 to 172 minutes, with a mean of 36 minutes and a median of 33 minutes.

Response rates

The overall response rate by selected households was 55%. In total 6,310 parents and carers of eligible households participated in the survey. In addition 2,967 or 89% of young people aged 11-17 years, for whom their parents or carers had given permission, completed a youth self-report questionnaire. Response rates for national surveys have been declining in recent years (Tourangeau et al., 2013). The response rate for the 2007 Adult National Survey of Mental Health and Wellbeing was 60% (Slade et al., 2007). The length of the survey interview may have been a contributing factor with the most common reasons cited for non-participation being too busy or insufficient time. Due to the lower than anticipated response rate, it was particularly important to assess the representativeness of the sample and test for possible non-response bias.

Sample representativeness

Comparison with 2011 Census data showed that the YMM sample was broadly representative of the Australian population in terms of major demographic

characteristics. Data was compared on SEIFA, population distribution, age, sex and country of birth of the total population of 4-17 year olds in Australia and demographic characteristics including household income, family type, household tenure, parent/carer education and labour force status of families with children aged 4-17 years. Selected indicators are included in Table 3, no major differences were observed for those indicators not included in this table.

However, the sample was found to include a higher proportion of children aged 4-7 years than would be expected based on random sampling with 34.1% of the main sample aged 4-7 years, compared to the 28.8% in the 2011 Census. This pattern has been observed repeatedly in social surveys including the first national survey, the 1993 WA Child Health Survey and the WA Aboriginal Child Health Survey. This is most likely due to families with younger children having lower workforce participation, and therefore being more likely to be available and more willing to make time available to participate.

There was also a lower proportion of families with only one eligible child, with 37.7% of all participating families having one child compared with 45.8% of those in the 2011 Census. As the survey was based on a random sample of families from which one in-scope child per household was randomly selected, the unweighted sample numbers

would be expected to have a higher proportion of children in families with just one child aged 4-17 years. This pattern has also been observed repeatedly in other social surveys and is also most likely to be due to workforce participation. Families with multiple children may be more likely to have a parent or primary carer who does not work or works part-time and therefore are more likely to be available and willing to participate in the surveys.

While the response rate to the survey reflects the trend to declining participation in social surveys over the last few decades, analyses of the final survey sample against the 2011 Census found it to be representative of the Australian population on SEIFA, population distribution, family structure, parent/carer country of birth and housing tenure, Housing income, education status and labour force status of parents/carers.

Weighting

The survey data were weighted to represent the Australian estimated resident population of children and adolescents aged 4-17 years as at 30 June 2013 provided by the Australian Bureau of Statistics (Australian Bureau of Statistics, 2014). Weights were calculated using the generalised raking procedure of Deville and Sarndal (1992).

Weights were calibrated by sex, age (in single years), family size and household

income. A separate set of weights was calculated for the youth self-report questionnaire data.

Conclusion

Australia is distinguished by its initiatives in the measurement of the mental health status of its population. The first child and adolescent component of the National Survey of Mental Health and Wellbeing represented the first time any nation had attempted to undertake a population survey of the mental health of its young people. The first survey provided a basis for planning and development of child and adolescents mental health services in Australia. Not unreasonably, it might be expected that the new findings from the second Australian Child and Adolescent Survey of Mental Health and Wellbeing will be critical in underpinning the ongoing progress in mental health sector reform by providing contemporary estimates on the prevalence of mental health problems, the burden associated with these disorders, and the services used in their management, and the consumer response to their adequacy in meeting their needs.

The data collected in the survey will be made available to interested researchers through access to the confidential unit record file (CURF). This will provide a continuing source of high quality information through the onward work of scientists, scholars,

practitioners, policy makers, and service providers and produce continuing benefits to guide the next generation of Australian mental health care.

Acknowledgements

The authors would like to thank the over 6,000 families that gave their time to participate in the survey, Rajni Walia, Gerry Bardsley, and the team at Roy Morgan Research who undertook the data collection, and the Survey Reference Group for their input into the design and conduct of the survey.

Funding

The second Australian Child and Adolescent Survey of Mental Health and Wellbeing was funded by the Australian Government Department of Health.

Declaration of conflicting interests

The authors declare that there is no conflict of interest.

References

- Australian Bureau of Statistics (2011) *Australian Statistical Geography Standard (ASGS): Volume 1 – Main Structure and Greater Capital City Statistical Areas, Australia, 2011*. Canberra: Australian Bureau of Statistics, Cat. 1270.0.55.001.
- Australian Bureau of Statistics (2014) *Australian Demographic Statistics, June 2014*. Canberra: Australian Bureau of Statistics Cat. 3101.0.
- Australian Institute of Health and Welfare (2012) *Social and Emotional Wellbeing: Development of children's headline indicator*. Cat. No. PHE 158. Canberra: AIHW.
- American Psychiatric Association (2000) *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision*. Washington, DC: American Psychiatric Association.
- Bird HR, Canino GJ, Davies M, et al. (2005) The Brief Impairment Scale (BIS): a multidimensional scale of functional impairment for children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry* 44: 699-707.
- Boterhoven de Haan KL, Hafekost J, Lawrence D, et al. (2014). Reliability and validity of a short version of the general functioning subscale of the McMaster Family Assessment Device. *Family Process*. Doi:10.1111/famp.12113.

Department of Family and Community Services (2005) Growing up in Australia: the longitudinal study of Australian children – Annual Report 2004. Melbourne: Australian Institute of Family Studies.

Deville J-C, Sarndal C-E (1992) Calibration estimators in survey sampling. *Journal of the American Statistical Association*. 87: 376-382.

Goodman R (1997) The Strengths and Difficulties Questionnaire: A Research Note. *Journal of Child Psychology and Psychiatry*. 38: 581-586.

Green JG, Gruber MJ, Sampson NA, et al. (2010) Improving the K6 short scale to predict serious emotional disturbance in adolescents in the USA. *International Journal of Methods in Psychiatric Research*. 19 Suppl 1: 88-98. Doi: 10.1002/mpr.315.

Igra V, Irwin CE (1996) Theories of Adolescent Risk-Taking Behaviour. In DiClemente, RJ, Hansen WB, Ponton LE (Eds) *Handbook of adolescent health risk behaviour*. New York: Plenum Press, pp. 35-51.

Kessler RC, Barker PR, Colpe LJ, et al (2003) Screening for serious mental illness in the general population. *Archives of General Psychiatry*. 60: 184-189.

Kolbe LJ, Kann L, Collins JL (1993) Overview of the Youth Risk Behavior Surveillance System. *Public Health Reports*. 108 (Suppl 1): 2-10.

Landgraf JM, Abetz L, Ware JE (1996) *The CHQ User's Manual*. Boston: The Health Institute, New England Medical Centre.

Livingstone S, Haddon L (2009) EU Kids online. *Journal of Psychology*. 217: 236-239.

Merikangas KR, Avenevoli S, Costello EJ, et al. (2009) The National Comorbidity Survey of Adolescent Supplement (NCS-A): I. Background and Measures. *Journal of the American Academy Child and Adolescent Psychiatry*. 48(4): 367-369. doi: 10.1097/CHI.0b013e31819996f1

Morgan VA, Watterreus A, Jablensky A, et al. People living with psychotic illness in 2010: The second Australian national survey of psychosis. *Australian and New Zealand Journal of Psychiatry*. 46:735-52.

Sawyer MG, Arney PA, Baghurst PA, et al. (2001) The mental health of young people in Australia: key findings from the Child and Adolescent Component of the National Survey of Mental Health and Well-being. *Australian and New Zealand Journal of Psychiatry*. 35: 806-814.

Shaffer D, Fisher P, Lucas C, et al. (2000) NIMH Diagnostic Interview Schedule for Children, Version IV (NIMH DISC-IV): description, differences from previous

versions and reliability of some common diagnoses. *Journal of the American Academy of Child and Adolescent Psychiatry*. 39: 28-38.

Slade T, Johnston A, Oakley Browne MA, et al. (2009) 2007 National Survey of Mental Health and Wellbeing: methods and key findings. *Australian and New Zealand Journal of Psychiatry*. 43: 594-605.

Stevens K (2012) Valuation of the Child Health Utility 9D Index. *Pharmacoeconomics* 30:729-47.

Telethon Kids Institute (2015) Young Minds Matter: the second Australian Child and Adolescent Survey of Mental Health and Wellbeing, Survey User's Guide – June 2015, Perth.

Tourangeau R, Plewes TJ, editors (2013) *Nonresponse in Social Science Surveys: A Research Agenda*. Washington D.C.: National Academies Press.

Table 1. Content of the parent/carer interview.

Module	Contents
Family structure	Sex, age, marital status, country of birth, language spoken for all family members and relationships between all members of the family
Education	Child's year in school, school attendance and performance in core subjects
Child health	General health, chronic health conditions, disabilities and whether ever diagnosed with psychological, emotional or behavioural problems from a list provided
SDQ	Strengths and Difficulties Questionnaire (SDQ) Parent Report Measure Baseline versions for Children (4-10 years) and for Youth (11-17 years)
DISC-IV	Modules on separation anxiety disorder, social phobia, generalised anxiety disorder, obsessive-compulsive disorder, major depressive disorder, ADHD and conduct disorder
Level of functional impairment	Extent of impairment due to symptoms in the domains of school or work, friends, family and self
Bullying	If child had been bullied and level of distress this caused
Service Use	Services used in the past 12 months and perceived need for services and barriers to receiving or seeking more help
Family characteristics	Family functioning, life stress events, impact of separation on the child or adolescent, smoking and alcohol consumption of parents and carers, mental health of parents and carers (K10)
Demographics	Education and employment of parents and carers, household income and housing tenure.
Interviewer impressions	Who was present for the interview, comprehension of questions, level of cooperation and effort and internal condition of dwelling

Table 2. Content of youth self-report questionnaire.

Module	Contents
Demographics	Age and gender
Education	School attendance, academic performance in core subjects, and school connectedness
Internet use	Use of internet and electronic games
Strengths and Difficulties Questionnaire (SDQ)	Youth Self Report Baseline version
Child health utility-9D (CHU-9D)	Quality of life for use in economic evaluation
Kessler Psychological Distress Scale (K10+)	Basic ten questions about how the child is feeling, days out of role, behaviour disorders and positive mental health
DISC-IV	Major depressive disorder module
Functional impairment	Impairment due to symptoms in the domains of school or work, friends, family and self
Service Use	Health, school, telephone counselling and online services and informal supports in previous 12 months as well as perceived need for services
Youth Risk Behaviours	Seven sections, with questions varying for different ages – <ul style="list-style-type: none"> - Smoking (screeener questions only for 11 and 12 year-olds); - Alcohol consumption (screeener questions only for 11 and 12 year-olds); - Use of other drugs (13 years and older); - Self-harm (12 years and older); - Suicidal behaviours (12 years and older); - Disordered eating behaviours (11 years and older); - Bullying (11 years and older) and - Sexual behaviour (13 years and older)
Psychosis screener	Presence of symptoms of psychosis
Self esteem	Measure of level of self esteem
Protective factors	Positive mental health and resilience

Table 3. Sample representativeness.

Demographic category	Young Minds Matter		2011 Census	
	Sample count	Unweighted %	Sample count	%
Sex				
Male	3,254	51.6	1,981,795	51.4
Female	3,056	48.4	1,875,788	48.6
Age group				
4-7 years	1,880	29.8	1,110,327	28.8
8-11 years	1,454	23.0	1,073,967	27.8
12-14 years	1,103	17.5	827,224	21.4
15-17 years	1,873	29.7	846,065	21.9
Number of children in family				
1 child	2,377	37.7	938,328	26.3
2 children	2,579	40.9	1,572,316	44.0
3 children	981	15.6	757,533	21.2
4 children	274	4.3	228,064	6.4
5 children	63	1.0	54,565	1.5
6 + children	36	0.6	23,076	0.7
Family type				
Original family	4,331	68.6	2,445,992	68.4
Step family	283	4.5	157,829	4.4
Blended family	392	6.2	189,246	5.3
Lone parent/carer family	1,250	19.8	766,575	21.4
Other family ^b	54	0.9	14,240	0.4
Parent or Carer Country of Birth				
Both carers born in Australia	2,977	47.2	1,479,993	46.1
One carer born in Australia, one carer born overseas	929	14.7	460,456	14.3
Both carers born overseas	1,188	18.8	596,181	18.6
Sole carer born in Australia	956	15.2	493,800	15.3
Sole carer born overseas	259	4.1	178,966	5.6
Housing tenure				
Owned outright	777	12.3	519,219	14.7
Owned with a mortgage	3,488	55.3	1,931,421	54.8
Rented – public housing	268	4.2	154,680	4.4
Rented - other	1,677	26.6	908,369	25.8
Other	100	1.6	13,667	0.4

Household income				
\$130,000 or more per year	1,686	26.7	834,287	23.3
\$52,000 - \$129,999 per year	2,833	44.9	1,434,100	40.1
Less than \$52,000 per year	1,479	23.5	875,606	24.5
Don't know/Not stated	312	4.9	429,870	12.0
SEIFA Quintiles				
Lowest quintile (most disadvantaged)	1,055	16.7	743,748	19.3
Second quintile	1,180	18.7	716,743	18.6
Third quintile	1,188	18.83	750,910	19.5
Fourth quintile	1,436	22.8	784,245	20.4
Highest quintile (Most advantage)	1,451	23.0	852,902	22.2
Remoteness				
Major cities	4,134	65.5	2,606,036	67.2
Inner regional	1,554	24.6	749,243	19.4
Outer regional	516	8.2	392,577	10.2
Remote and very remote	106	1.7	105,755	2.7
Labour force status				
Both carers employed	3,413	54.1	1,670,532	51.7
One carer employed, one carer not in employment	1,455	23.1	742,640	23.0
Both carers not in employment	209	3.3	139,621	4.3
Sole carer employed	740	11.7	412,250	12.7
Sole carer not in employment	475	7.5	268,633	8.3

a 'Original family' has at least one child living with their natural, adoptive or foster parents, and no step children.

b 'Other family' is where all children are not the natural, adopted, foster or step child of one or both carers.

Note: that the overrepresentation of young people 16-17 years in Table 3 is due to the inclusion of the oversample of 16 -17 year olds in the figures.